ACCELERATING AMERICA'S PLEDGE

GOING ALL-IN TO BUILD A PROSPEROUS, LOW-CARBON ECONOMY FOR THE UNITED STATES

Executive Summary

Bloomberg Philanthropies

For more information, see www.americaspledge.com

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About America's Pledge

An unprecedented coalition of U.S. states, cities, businesses, communities of faith, universities, health care and cultural institutions, and other organizations are now acting to fulfill America's climate pledge to the world. This commitment is reflected in the large number of American actors continuing to back the Paris Agreement, including members of the We Are Still In network, U.S. Climate Alliance, Climate Mayors, We Mean Business, and many others.

In July 2017, former New York City Mayor and United Nations Secretary-General's Special Envoy for Climate Action Michael R. Bloomberg and then-California Governor Edmund G. Brown Jr., launched an initiative known as America's Pledge. The initiative seeks to analyze, catalyze, and showcase climate action leadership by U.S. governors, mayors, business leaders, and others. America's Pledge serves these efforts as a voice of U.S. action to the international community—and also to domestic actors, helping them better understand their significant impact as activity broadens and deepens across the country.

In November 2017, at the 23rd Conference of the Parties to the United Nations Framework Convention on Climate Change, America's Pledge released a comprehensive survey of U.S. climate action led by states, cities, businesses, and other non-federal actors. At the Global Climate Action Summit in San Francisco in September 2018, America's Pledge released *Fulfilling America's Pledge*, providing at that point the most comprehensive and robust assessment of the impact of action by U.S. states, cities, businesses, and others.

With this report, released in December 2019 at the 25th Conference of the Parties in Spain, America's Pledge looks further out—toward 2030. It assesses what would be delivered from expanded actions by states, cities, businesses, and citizens and then layers on a robust, complementary, and ambitious federal policy program after 2020 to form an "All-In" comprehensive American climate strategy.

Acknowledgements

America's Pledge is co-chaired by Michael R. Bloomberg and Edmund G. Brown Jr. The America's Pledge Vice-Chairs are Carl Pope, former Executive Director of the Sierra Club, and Mary Nichols, Chair of the California Air Resources Board. The America's Pledge report is the product of a collaborative effort between the leadership of the America's Pledge initiative and a core project team. The America's Pledge project team responsible for this report is co-led by the University of Maryland Center for Global Sustainability and Rocky Mountain Institute. Significant contributions to this year's report were also made by the World Resources Institute and CDP. Support for America's Pledge is provided by Bloomberg Philanthropies.

The America's Pledge initiative and project team would like to thank the over 100 stakeholders and reviewers that met with us and/or made suggestions for improving the framing and analysis of this report. Our conversations with stakeholders were valuable and essential to improving the focus, the vision, and the final product of this report. Special thanks also to significant and sustained input and helpful comments from Carl Pope, Co-Vice Chair of America's Pledge.

Suggested Citation: The America's Pledge Initiative on Climate Change (2019) "Accelerating America's Pledge: Going All-In to Build a Prosperous, Low-Carbon Economy for the United States." By N. Hultman, C. Frisch, L. Clarke, K. Kennedy, P. Bodnar, P. Hansel, T. Cyrs, M. Manion, M. Edwards, J. Lund, C. Bowman, J. Jaeger, R. Cui, A. Clapper, A. Sen, D. Saha, M. Westphal, W. Jaglom, J.C. Altamirano, H. Hashimoto, M. Dennis, K. Hammoud, C. Henderson, G. Zwicker, M, Ryan, J. O'Neill, E. Goldfield. Published by Bloomberg Philanthropies with University of Maryland Center for Global Sustainability, Rocky Mountain Institute, and World Resources Institute. New York. Available at: americaspledge.com/reports

Introduction Letter from Michael R. Bloomberg and Edmund G. Brown Jr.

In the two years since President Trump announced his intention to withdraw the United States from the Paris Agreement, nearly 4,000 U.S. cities, states, businesses, and universities have reaffirmed their commitment to helping America drive down emissions and answer the call of the international community to continue leading the global fight against the climate crisis.

We formed America's Pledge to quantify and communicate the successes of this unprecedented climate mobilization—and to show the international community that, despite federal inaction, *we are still in*. Since 2017, America's Pledge has published yearly, comprehensive assessments of non-federal action to reduce national emissions and show that these were not just empty words—that we have and will continue to take action on climate.

This year's report, *Accelerating America's Pledge: Going All-In to Build a Prosperous, Low-Carbon Economy for the United States*, is the culmination of a year of dedicated engagement and analysis by researchers, climate scientists, and public policy experts. The University of Maryland Center for Global Sustainability and the Rocky Mountain Institute, with the World Resources Institute and CDP, led this work and have enabled America's Pledge to provide the most comprehensive analysis of ongoing and projected U.S. emissions.

The resulting report from this new analysis previews three potential futures for this country and the world. Informed by the ambitious climate policies already underway in dedicated states, localities, and businesses, it offers a roadmap to reaching the nation's climate goals and sets the groundwork for a clean energy future for decades to come. It is a best-in-class deep-dive into America's climate prospects—and what we need to do to get there.

Accelerating America's Pledge's evidence is encouraging. The current coalition of U.S. cities, states, and businesses committed to the Paris agreement is globally significant – and only continues to grow. Expanding current commitments by these leading actors in the U.S. economy will take us further, and even if late, federal reengagement can enable the United States to get back on track for full decarbonization by 2050.

There is no greater threat facing humanity today than the climate crisis. *Accelerating America's Pledge* reminds citizens across the country—and the world—that we have the tools necessary to fight climate change, but we need our political leaders to do more, faster. By building on the commitments already made by local governments and businesses—and encouraging bolder action from our nation's leaders—we can forge a powerful national climate strategy that lays the foundation for a sustainable future.

Michael R. Bloomberg
Former Mayor of New York

Edmund G. Brown Jr.
Former Governor of California

Highlights

Leading U.S. states, cities, and businesses are forging a powerful approach to climate action that builds support and implementation from the ground up. By setting their sights higher and generating clean economies through innovative policies, these leaders are today laying the foundation for a comprehensive national climate strategy.

American coalitions of states, cities, businesses, and others committed to climate action in support of the Paris Agreement are massive and globally significant. They now represent 68 percent of U.S. GDP, 65 percent of U.S. population, and 51 percent of U.S. emissions. If they were a country, these U.S. coalitions would have the world's second largest economy—second only to the entire United States itself.

This report illuminates a pathway to a comprehensive and ambitious American climate strategy for 2030, using expanded bottom-up leadership as the foundation of a comprehensive "All-In" climate strategy. This comes at a time when nations around the world are considering how to strengthen their climate targets and raise global ambition.

- Ambitious and rapidly expanded bottom-up action alone, drawing on the policies of the most successful states, cities, and businesses, could reduce U.S. greenhouse gas emissions up to 37 percent below 2005 levels by 2030.
- A comprehensive All-In climate strategy that combines these bottom-up efforts with aggressive new federal engagement could reduce U.S. greenhouse gas emissions 49 percent below 2005 levels by 2030. This new congressional and executive action would lay the foundation for a net-zero emissions economy by mid-century, in line with the goals of the Paris Agreement and the recent IPCC report *Global Warming of 1.5°C*.

Achieving this ambitious level of emissions reductions will require political prioritization of climate action and accelerated market transformation. Since many clean energy technologies are already cost-competitive with their fossil-fuel competitors, the economics are compelling. Nonetheless, a massive effort will be needed to deploy these and other technologies at the speed and scale envisioned in our scenarios. Transforming our politics and our energy economy will require broad citizen mobilization, increased energy productivity, disruptive innovation, new market structures, and forward-thinking investment.

If well-planned and implemented, the required rapid change could bring broad-based economic gain. In part because almost all clean energy technologies will cost consumers less than their current fossil-fuel competitors well before 2030, and many are already cheaper today, the transition to a low-carbon economy will enhance prosperity and lower costs. The United States can re-establish and solidify its position as a leader in the clean industries of the 21st century, improve the health of citizens and ecosystems, and provide a fairer transition for workers and communities in fossil fuel industries.

We are already on our way to this future. Across key economic sectors, states, cities, and businesses are adopting concrete actions that can drive down U.S. emissions at scale. We calculate that full achievement of already on-the-books policies from state and local actors—paired with rapidly shifting economics in the power sector—would reduce emissions 19 percent below 2005 levels by 2025 and 25 percent below 2005 levels by 2030.

Executive Summary

The United States is an economic engine of the world, a leader in innovation, and a cradle of global creativity. Even with rollbacks to federal climate policies, U.S. states, cities, and businesses are emerging as leaders in the global green economy. Growing public concern about climate change has the potential to dramatically shift national politics towards action. With renewed federal leadership, these efforts can complement each other and contribute to an "All-In" national climate strategy to drive U.S. emissions to net-zero while bolstering our economy.

Since 2017, the America's Pledge initiative has demonstrated the resolve and power of U.S. states, cities, and businesses to pursue decarbonization during a period of federal inaction. New policies are being tested in our nation's "laboratories of democracy," as states, cities, and businesses deploy new and cost-competitive clean technologies. These efforts have become even more crucial as the IPCC special report *Global Warming of 1.5°C* has highlighted the urgent need to avert the worst effects of climate change, and as nations around the world are considering how to strengthen their climate targets and raise global ambition.

To illustrate the opportunities for American climate action, this report develops two high-ambition scenarios for 2030—the year many countries will plan for when ratcheting their climate commitments and an important milestone on the path to net zero emissions by mid-century.

1. **The Bottom-Up scenario** projects how much a significant expansion of state, city, and business climate action could reduce greenhouse gas emissions, even without federal interventions. In this scenario, first-mover states and cities strengthen their climate policies and a growing wave of fast-follower jurisdictions join their efforts due to growing citizen activism and the economic benefits and consumer savings from decarbonization. Businesses pioneer and lead market innovations. However, many holdout states remain largely inactive on climate and federal policy remains frozen.

   We find that significantly expanded bottom-up action alone could reduce U.S. emissions up to 37 percent below 2005 levels by 2030.

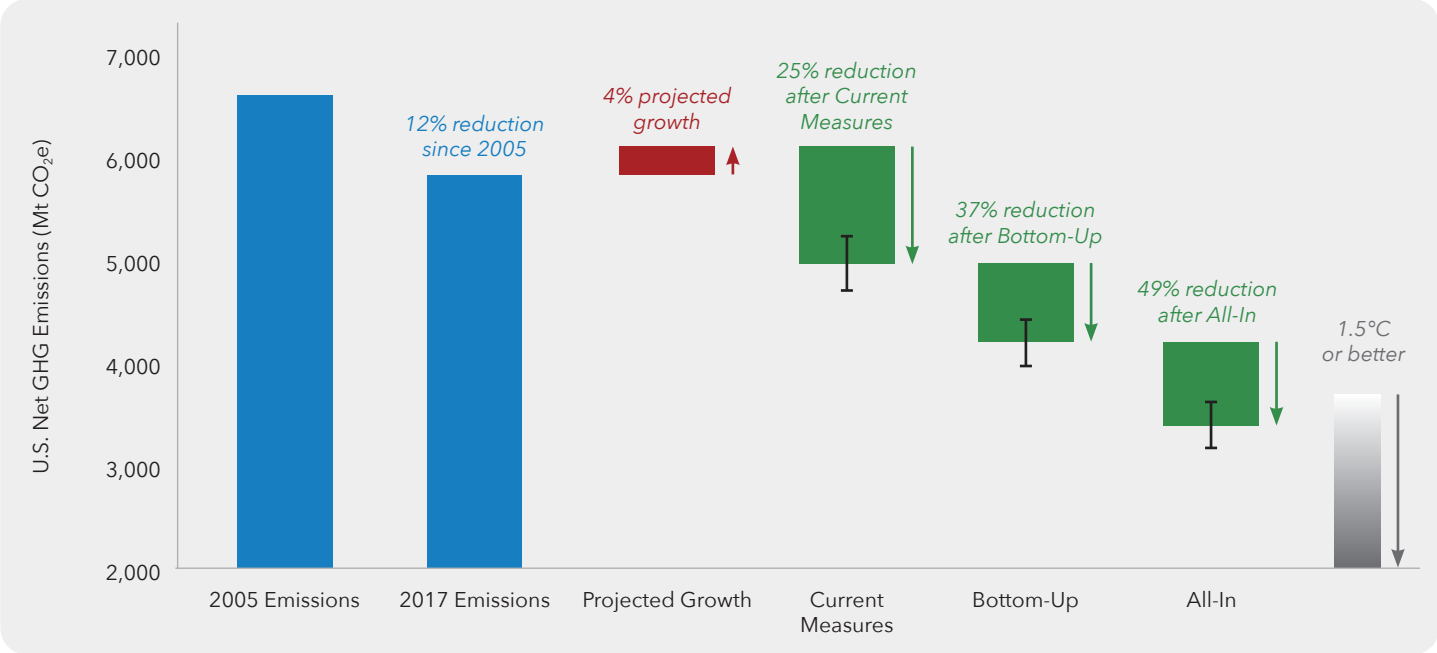
2. **The All-In scenario** projects how much a comprehensive national climate strategy could reduce greenhouse gas emissions, when layered on top of the expanded state, city, and business actions included in the Bottom-Up scenario. New executive branch and congressional actions after 2020 complement the continuing efforts of states, cities, and businesses and fill in the gaps where federal policy is needed or more effective.

   We find that combining bottom-up efforts with aggressive federal engagement and legislation after 2020 in a comprehensive All-In strategy could reduce U.S. emissions by 49 percent below 2005 levels by 2030.

Both of these scenarios offer encouraging news on the potential for U.S. decarbonization in the coming decade. Figure ES-1 shows how these scenarios build on each other to drive U.S. emissions rapidly lower. According to our analysis, the policies and technological progress driven by the policies in these scenarios reduce emissions enough by 2030 to lay a foundation for a fully decarbonized economy by mid-century, in line with the goals of the Paris Agreement and the recent IPCC report *Global Warming of 1.5°C*. They would put the United States into a renewed position of global leadership that could add to international efforts to reduce emissions across the world.

The strategies outlined in this report are organized around three simple principles that will empower action from the smallest business or town to large states, companies, and the federal government: 1) **Accelerate toward 100% clean electricity** and other energy supplies; 2) **Decarbonize energy end-uses** in our transportation, buildings, and industry, primarily through electrification and efficiency; and 3) **Enhance the carbon storage potential** of forests, farms, and coastal wetlands to address remaining emissions (see Figure ES-2). Across all of these principles, it will be essential to limit both carbon dioxide (CO_2) and other non-CO_2 greenhouse gases. These steps take advantage of high-impact opportunities that are available today, while also laying the necessary groundwork for long-term continued emissions reductions after 2030 to achieve a carbon-neutral future.

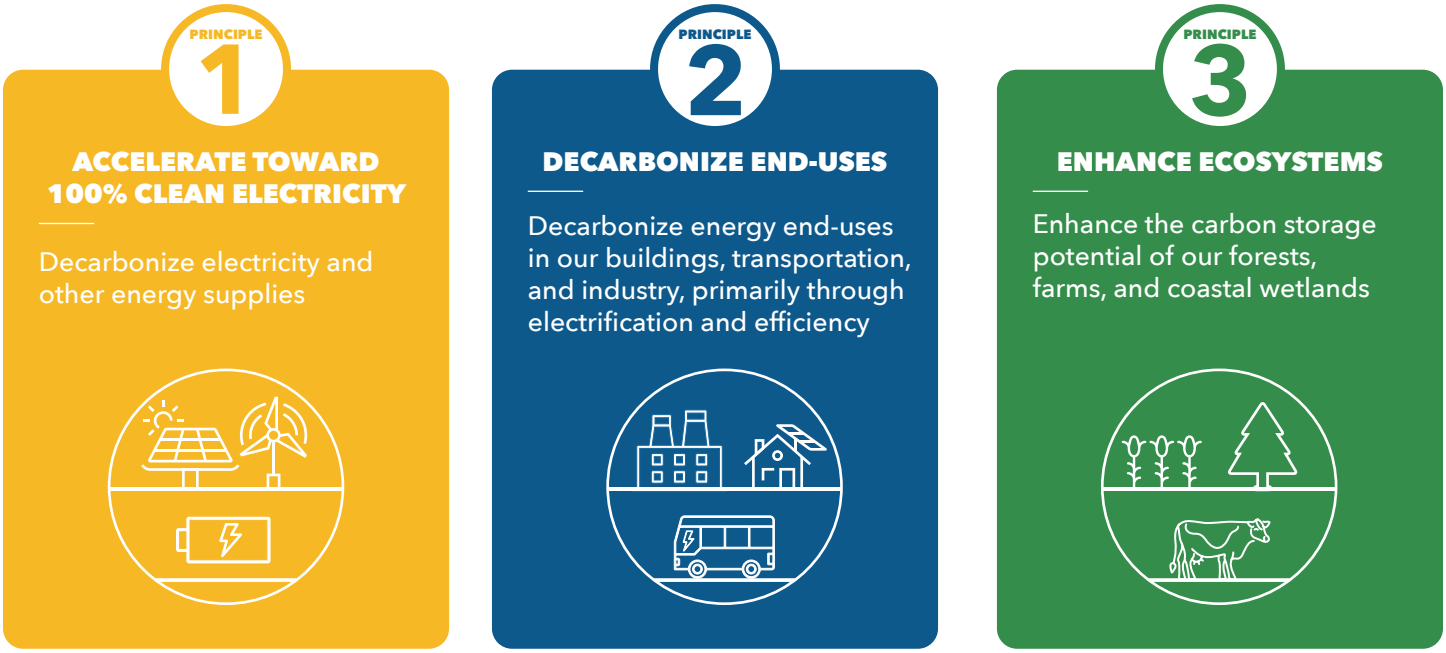
Figure ES-1 | **America's Pledge U.S. Emissions Analysis for 2030**



▲ **Rapidly expanded bottom-up action could reduce emissions 2,435 Mt CO_2e, 37% below 2005 levels by 2030. An All-In climate strategy that combines bottom-up action with federal reengagement could reduce emissions 3,245 Mt CO_2e, 49% below 2005 levels by 2030. This is in line with the Paris Agreement's mid-century goals.**

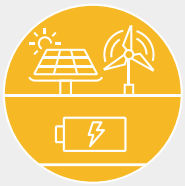
By following the strategies we outline across these principles, a leading state would undergo significant economic transformation. By 2030 it would have at least 60 percent renewable electricity, zero coal plants, 100 percent electric new buildings, electric vehicles as two-thirds of all new car sales, and an enhanced land carbon sink, among other improvements. And it would have set a firm policy framework to move rapidly towards 100 percent zero-emission power, road transport, and buildings as soon as feasible between 2030 and 2050. Table ES-1 presents the other essential ingredients that were modeled in our high-ambition scenarios and can serve as a policy platform for leader states, cities, and businesses. The report and technical appendix describe the modeling assumptions in more detail.

Figure ES-2 | **Three Principles of All-In Climate Action**



▲ An All-In American climate strategy will be built on actions taken across three principles: accelerate toward 100% clean electricity and energy supply, use that clean electricity in buildings, transportation, and industry (end-uses) while improving the energy productivity of our economy, and utilize nature-based solutions across our diverse American ecosystems.

Table ES-1 | Key Policies and Actions Included in this Analysis

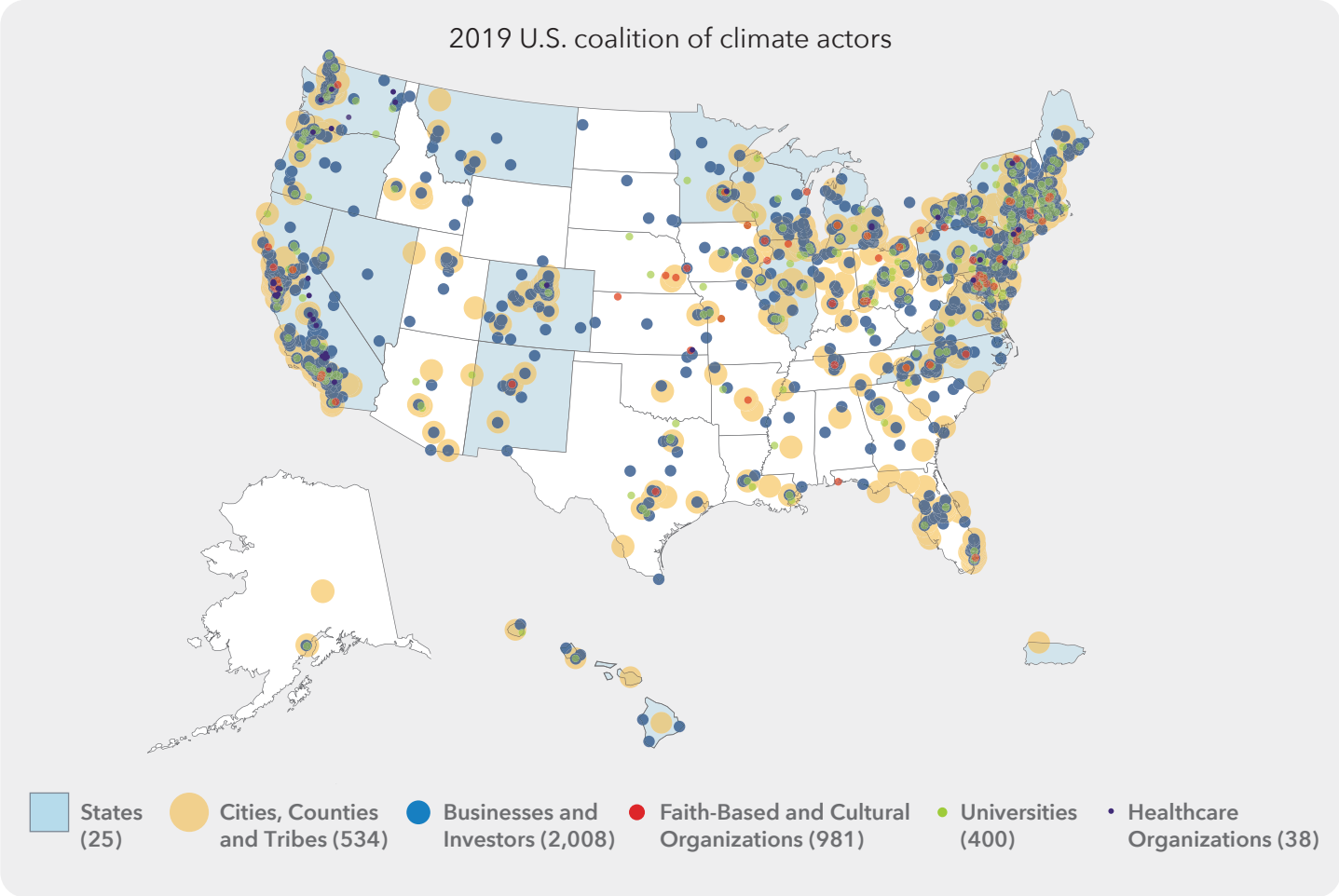
	BOTTOM-UP SCENARIO IN 2030	ALL-IN SCENARIO IN 2030
Principle 1: Accelerate toward 100% clean electricity and other energy supplies 	Leader states: • Reach 60% renewable electricity with clean electricity standards and other policies. • Shut down all coal plants. Peak and then reduce reliance on gas. • Reduce fugitive methane from oil and gas facilities by 60%. Remaining states make less policy progress, though market trends and advocacy reduce coal generation and increase renewables nationally. Overall coal generation decreases to just 7% of generation nationally in 2030, while renewable electricity increases to 42% and clean electricity to 61%.	• Federal clean electricity standard and tax incentives complement state efforts and lead to approximately 50% renewable electricity and more than 75% clean electricity nationwide. • Federal policies complete the phase-out of coal generation by 2030 and ensure that gas generation is below current levels by 2030 and declining. • Methane regulations and associated emissions reductions are extended to all states.
Principle 2: Decarbonize end-uses: buildings, transportation, and industry 	Leader states: • Improve energy efficiency in buildings 2% annually with updated Energy Efficiency Resource Standards. • Ensure all new buildings are 100% electric by 2030 and existing buildings install electric appliances at end-of-life. • Improve performance of light-duty vehicle internal combustion engines by 4% annually. • Ensure electric vehicles reach two-thirds of new car sales and more than half of light-duty truck sales through zero-emissions vehicle mandates and other supporting policies. • Incentivize industrial facilities to adopt best-in-class energy management practices and adopt electric technology, and promote CCUS for industrial uses. • Adopt policies to phase down HFCs consistent with the global Kigali Amendment and to reduce leaks from existing stock. Fast-follower states go about half as far. Remaining states make little progress.	All states follow the policies of leader states described in the Bottom-Up scenario with the help of federal policies, standards, and financing. • All new buildings in all states are 100% electric by 2030 and existing buildings install electric appliances at end-of-life. • Federal policies and standards ensure electric vehicles reach two-thirds of new car sales, more than half of light-duty truck sales, 20% of medium-duty truck sales, and 100% of transit bus sales, while continuing progress on conventional vehicle GHG emissions from 2021 to 2030. • Federal policy extends industrial efficiency, electrification, carbon capture, utilization, and storage (CCUS), and procurement policies to facilities in all 50 states.
Principle 3: Enhance ecosystems 	• Leader states incentivize low-cost natural climate solutions such as natural forest management, optimal nutrient application, and the use of cover crops to increase capacity of the land carbon sink 11% compared to today. • All states mitigate agricultural methane and nitrous oxide emissions where it is cost effective.	• Low-cost natural climate solutions pursued in all states increase the land carbon sink by 23% compared to today. • Strong federal incentives promote methane biodigesters to reduce methane from livestock by 29% compared to reference case.
Economy-wide	Leader states meet their legislated economy-wide emissions reduction goals and partially meet their aspirational goals.	In addition to meeting legislated economy-wide emissions reduction goals, all leader states fully meet their aspirational goals.

Additional assumptions are described in the report and further details are in the technical appendix.

Achieving this ambitious level of greenhouse gas reductions will require profound changes across our economy and politics at a pace matching or exceeding that of other rapid technological transitions. While many clean energy technologies are already cheaper than their fossil-fuel competitors, and the remainder will be competitive by 2030, deploying these technologies at the speed and scale envisioned in our scenarios will require comprehensive, forceful policies and significant investments. Increased energy productivity and innovation can help smooth the path to these changes. Such rapid transitions are not unprecedented. For example, in the United States, automobiles went from less than 1 percent penetration in 1900 to 75 percent in 1930.[1] Fundamentally, this transition will depend on a transformation of our politics that both draws from and supports higher climate action across all levels of government.

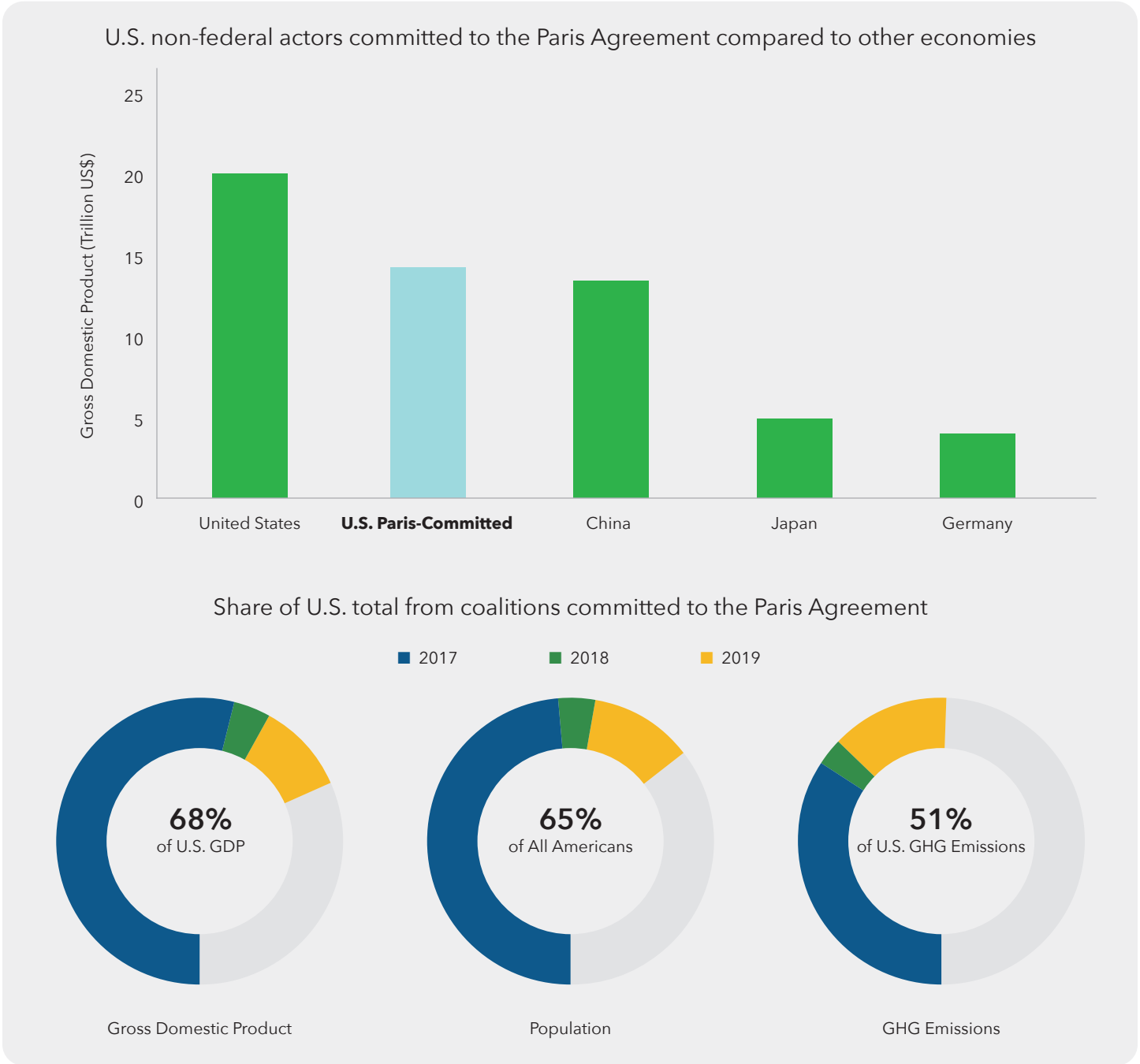
Fortunately, we are already moving rapidly toward this future. In the past year, states, cities, and businesses have raised the bar on climate leadership and are making up for some of the lost ground from the federal government's climate policy rollbacks. The coalition of these American actors committed to climate action has continued to grow, particularly after the 2018 midterm election (Figure ES-3, ES-4). These coalitions now represent 68 percent of U.S. GDP, 65 percent of the U.S. population, and 51 percent of U.S. emissions. If they were a country, these American leaders, jurisdictions, and organizations would be equivalent to the world's second largest economy—after the United States itself (Figure ES-4). This means that if America was broken into two economies, one climate forward and one climate laggard, the largest economy in the world would be U.S. climate-forward states, cities, and counties.

Figure ES-3 | **Actors Supporting the Paris Agreement**



▲ **Thousands of leaders, with real policy and financial power across our federal system in the United States, have committed to climate action in their jurisdictions or within their organizations.**

Figure ES-4 | **The Growing Footprint of U.S. States, Cities, and Counties committed to Climate Action in Support of the Paris Agreement**



▲ **Coalitions of states, cities, businesses, and counties committed to climate action in support of the Paris Agreement continue to grow, particularly after the U.S. mid-term elections. They now represent 68% of GDP, 65% of the population, and 51% of GHG emissions. If these U.S. non-federal actors were a country, they would be the world's largest economy besides the United States itself.**

The continued growth of coalitions supporting ambitious climate policy and action demonstrates the potential to rapidly drive down emissions in the United States. Significant reductions will be achieved by translating this momentum into concrete, sector-specific policies and actions which move the United States towards mid-century achievement of 100 percent clean energy. In addition to the Bottom-Up and All-In scenarios, which demonstrate this potential, this report also includes a Current Measures scenario focused solely on what state and local actors are already achieving.

- **The Current Measures scenario** projects how much greenhouse gas emissions would be reduced by the full achievement of existing policies from state and local actors, combined with market forces—measuring only concrete policies and actions rather than aspirational goals. This scenario also reflects shifting economics in the power sector, leading to greater levels of coal retirements than those currently announced, and updated assumptions for non-CO_2 emissions and agriculture. Overall, the results show an improvement from the Current Measures scenario in our 2018 report, *Fulfilling America's Pledge*, and demonstrate the vital role that state and local actions are already playing in decarbonizing our economy.

  We find that full implementation of Current Measures, including those adopted within the last year, will reduce emissions 19 percent below 2005 levels by 2025 and 25 percent below 2005 levels by 2030.

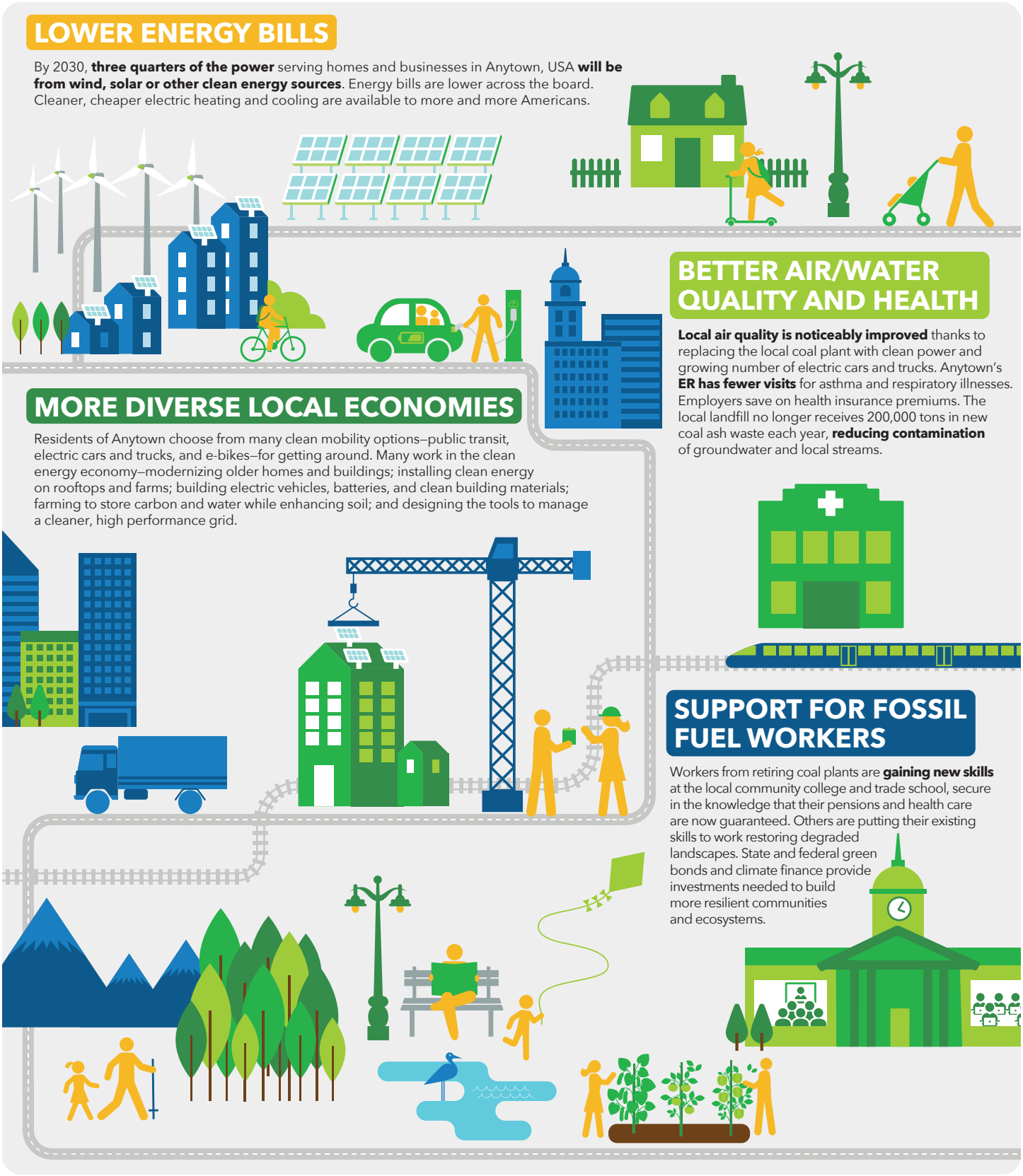
An All-In climate strategy will catalyze a fundamental transformation of the U.S. economy. If planned well and done right, it will reinvigorate American communities, industries, and landscapes; create jobs; and lower energy costs for consumers and businesses. It will also improve public health and reduce the economic costs and risks from unmitigated climate change (Figure ES-5).

Technology and Cost: By 2030, the transformation can deliver better or equal performance in electric power, vehicles, and buildings compared to fossil fuel technologies—and at a smaller price tag. Building and operating new clean energy generation combined with storage and load management is already cheaper than keeping existing coal plants online. Such clean energy portfolios are also cheaper than 90 percent of proposed new gas-fired power plants. Plug-in electric cars are delivering substantial savings on a lifetime basis now and are expected to be at or very close to purchasing price parity with gasoline vehicles within three to five years. Buildings with electric heat pumps increasingly save money compared with gas heating systems in homes and offices. Continued innovation will be necessary for all sectors, but especially for hard-to-decarbonize areas like industry, aviation, and shipping.

Jobs: The transition will create new opportunities in the industries and careers of the future, including renewable energy, energy storage, electric vehicle manufacturing, green building construction and efficiency retrofits, sustainable forestry, and regenerative agriculture. Already, clean energy generation employs 1.3 million workers across over 300 occupations, and energy efficiency employs an additional 2.35 million. The two fastest growing occupational categories in the United States are wind turbine technician and photovoltaic installer, both with average salaries well above the median wage. These jobs are located in both urban and rural areas, and across the geographic span of the United States.

The transformation will also create benefits to air and water quality, human health, and ecosystems that improve quality of life for all Americans. Since 2010, the retirement of 270 coal plants has already helped avoid 7,000 premature deaths from air pollution. In the All-In scenario, the health benefits of improving air quality just by lowering coal and gas electricity generation compared to current levels would

Figure ES-5 | **Life in Anytown, USA with the All-In Climate Strategy**



result in an additional 5,700 avoided premature deaths annually and have an economic benefit of $26 to $58 billion. These numbers from conventional pollutants capture just one portion of the benefits possible in the All-In scenario. Lower levels of ground-level ozone will also occur, reducing incidences of asthma and other illnesses. After 2030, the decarbonization of transport and buildings will lead to even greater benefits to air quality and health.

Achieving these many benefits will require innovative public and private investments in low-carbon infrastructure such as smart grid technologies, high-voltage transmission lines, energy storage, and electric vehicle charging stations. The government will need to phase out fossil fuel subsidies and both the public and private sectors we also need to expand investment in deploying emerging low-carbon technologies while developing new advanced emissions-reducing solutions through research and development. This will continue the trend of driving down technology costs through economies of scale and learning-by-doing. And to achieve a zero-carbon economy that works for all Americans, we also need to begin planning immediately to ensure economic diversification and compelling employment opportunities for workers and communities highly dependent upon fossil fuel industries. Public policies and investments must anticipate needs and be tailored to the local context to reorient communities and workers toward new industries, careers, and sources of municipal revenues.

◂ If we have 100% commitment across government, business, and citizens to execute the vision of the All-In climate strategy, daily life in the average American town will have improved substantially by 2030. By protecting the climate, we can achieve cheaper energy, cleaner air and water, and better-performing buildings and vehicles.

While the road ahead is not easy, it is possible—and state, local, and private sector efforts are already moving us in the right direction. It will require rapid deployment of diverse climate strategies from the bottom up and will require the skills of all leaders and organizations to envision and act on the ways in which these opportunities can transform their own economies for the better. Long delayed reforms and deferred maintenance of infrastructure and ecosystems will need to be addressed. It will require grassroots and broad organizational efforts to elect leaders that embrace, regardless of partisan affiliation, the vision of a clean, climate-friendly, and robust American economy. It will require that policies and strategies are pursued that help ensure all communities share in the benefits of the transition to a clean economy. It will require us to bring renewed American leadership to the international stage.

Events of the past few years demonstrate that America can and will step up, not only to carry the torch forward in this period of federal inaction on climate, but also to build the basis for a real, robust, and comprehensive American approach to building a thriving, clean economy. We are close, and the next few years will be critical to our success. We can, and must be, all in.

Endnotes

1 U.S. Department of Transportation Federal Highway Administration, "State Motor Vehicle Registrations, by Years (1900 - 1995)," accessed on October 24, 2019, https://www.fhwa.dot.gov/ohim/summary95/mv200.pdf

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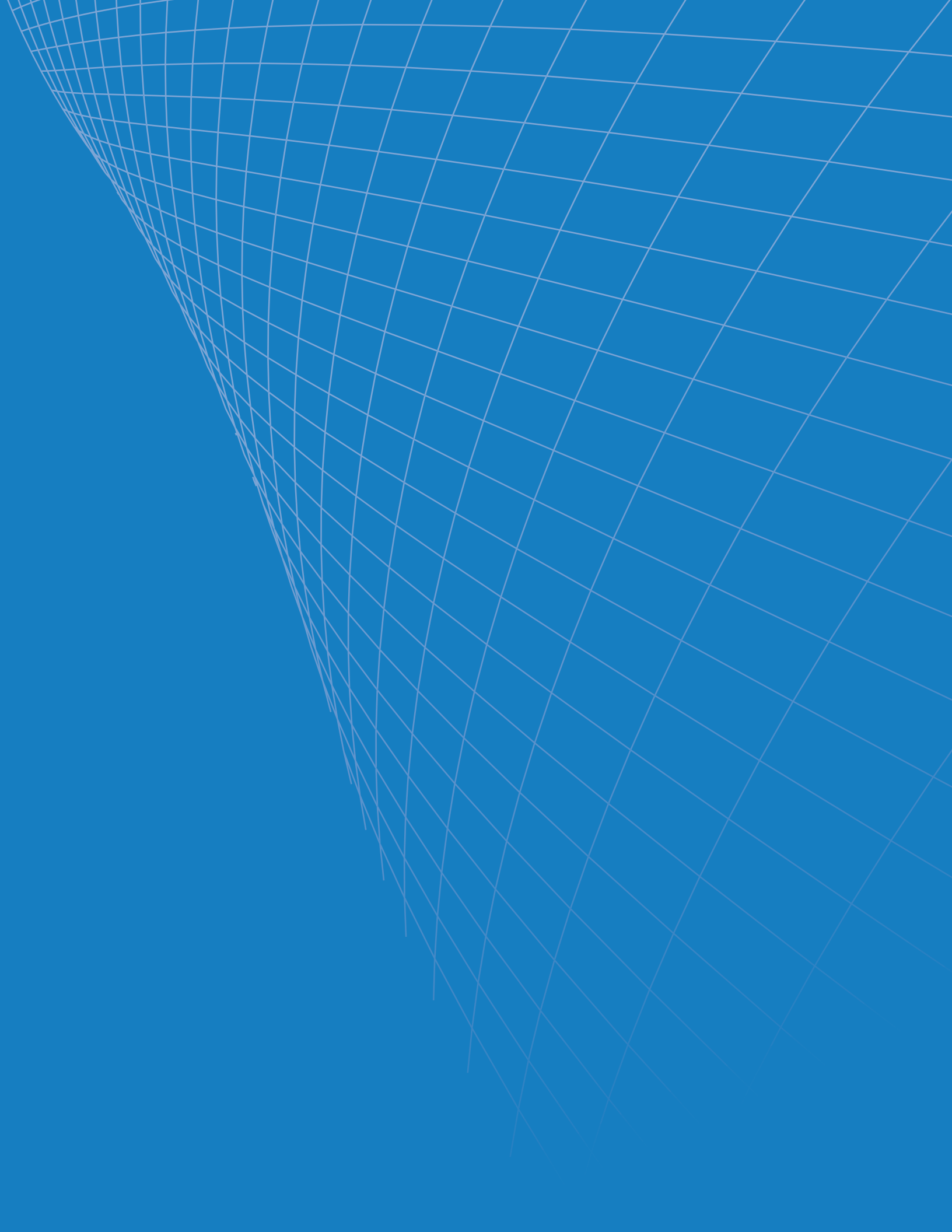

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